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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/068,853	02/11/2002	John K. Howard	57457-020	8970

7590 10/06/2004

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EXAMINER

MARSCHEL, ARDIN H

ART UNIT	PAPER NUMBER
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1631

DATE MAILED: 10/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/068,853	HOWARD, JOHN K.	
	Examiner	Art Unit	
	Ardin Marschel	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-12, 14-17, 19-22 and 24 is/are rejected.
- 7) ☒ Claim(s) 6, 13, 18 and 23 is/are objected to.
- 8) ☒ Claim(s) 1-24 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's election without traverse of Species A and C in the reply filed on 7/9/04 is acknowledged.

ONE SPECIE ELECTION REQUIREMENT WITHDRAWN

Consideration of the instant claims regarding the above two specie elections reveals that prior art of record neither teaches nor suggests the Specie C as elected. Therefore the second specie election between Species C and D is hereby withdrawn. The Specie A election is maintained.

PRIOR ART

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 7-12, 14-17, 19-22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodman et al. (P/N 6,627,154); in view of Stanbro et al. (P/N 4,935,207); taken further in view of Matthews et al. [Analytical Biochemistry 169:1-25 (1988)].

In the abstract, Goodman et al. describes the detection of analytes via sensors accompanied by further processing of the signals. The sensors are arranged in arrays of multiple sensor elements as depicted in Figure 2A with a unit cell sensor shown, for example, in Figure 11, as a plurality of detection nodes also as in instant claim 1, line 3. Row and column electronics select sensors for electronic communication as depicted in

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Figure 12 and column 18, lines 5-33, and also set forth in instant claim 1, lines 7-9.

Semiconductor elements make up the sensors of the reference as summarized, for example, in column 5, lines 45-65. The sensors detect analytes via various detected changes such as electrical properties as summarized in column 6, lines 42-57, which includes resistance etc. This section motivates and suggests the detection of analytes via electrical property change at the sensor site. Chemical analytes are also suggested and motivated in column 11, lines 15-23. Sensor output is amplified as set forth as an option of output processing in column 13, lines 34-45. Thus, Goodman et al. describes the chemical or analyte array sensor arrangement with row and column decoding for detection of analytes via semiconductor materials via also electrical properties thereof. Goodman et al. generically suggests and motivates the above sensor practice but does not specifically cite floating gate transistor sensors or DNA hybridization as set forth as an analyte in the instant claims.

The generic analyte detection suggestion and motivation in Goodman et al. is reasonably deemed to suggest a desired analyte as well known in the prior art such as DNA analytes detected by hybridization assays as in Matthew et al. Matthews et al. taken as a whole is a review article on this subject and documents the well known DNA detection methodology via probe/target or known/unknown sample DNA hybridization. See the section entitled "4. HYBRIDIZATION STRATEGIES" on pages 14-17 which includes solid support hybridization methodology for detection of hybrids as instantly claimed.

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The above two references, however, suggest and motivate array sensor detection of an analyte such as DNA but Stanbro et al. is added to document the usage of floating gate transistor sensors for detection of ions near the gate as an electrical property change. In particular, the floating gate transistor sensor type is described for analyte detection in column 8, lines 22-47, wherein a differential signal is generated via a floating gate FET (field effect transistor).

Thus, it would have been obvious to someone of ordinary skill in the art at the time of the invention to practice the Goodman et al. analyte detection array methods with a generic analyte as motivated therein, such as DNA which is detected via hybridization between a known probe and unknown sample DNA as in Matthews et al. wherein a particular sensor is utilized as generically motivated in Goodman et al. and described for electrical property detection in Stanbro et al. therefore resulting in the practice of the instant invention.

CLAIM OBJECTIONS

Claims 6, 13, 18, and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

No claim is allowed.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the Central PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CFR § 1.6(d)). The Central PTO Fax Center number is (703) 872-9306.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ardin Marschel, Ph.D., whose telephone number is (571) 272-0718. The examiner can normally be reached on Monday-Friday from 8 A.M. to 4 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, Ph.D., can be reached on (571) 272-0722.

Any inquiry of a general nature or relating to the status of this application should be directed to Legal Instrument Examiner, Tina Plunkett, whose telephone number is (571) 272-0549.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 30, 2004

John H. V. 9/30/04